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TI Isolation and structure-functional characterization of human  
colostral lactoferrin.

AU Aguila La O, Antonio [Reprint author]; Herrera Puerta, Ana G.; Toledo  
Velazquez, William; Rodriguez Alfonso, Armando; Garcia Sanchez, Hilda;  
Hernandez Machin, Janhna; Cadiz Lahens, Armando; Sierra Gonzalez, Gustavo;  
Hugh Brock, Jeremy

CS Group for Research on Lactoferrin, Iron Metabolism, and Immunomodulation,  
Finlay Institute, Ave. 27, No. 19805, La Lisa, CP 11600, Havana, Cuba

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DT Article

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AB Human lactoferrin has been the focus of extensive  
research because of its antimicrobial, ferrochelating, immunomodulatory,  
and diagnostic potentialities. To meet the need for homogenous  
lactoferrin preparations, here we report simple procedures for  
colostrum processing, chromatographic isolation, and quality control  
techniques for the evaluation of the most relevant structure-functional  
properties of lactoferrin. Purity and identity were determined  
by combination of electrophoretic, densitometric, and immunochemical  
techniques. Structural integrity was assayed by high-performance liquid  
chromatography (HPLC), and iron-chelating properties were evaluated by  
spectroscopic analysis of lactoferrin derivatives.  
Antimicrobial activity was tested in vitro against *Vibrio cholerae* C7258,  
a regional epidemic strain. These procedures allowed the isolation and  
characterization of substantially pure (98-99%), structurally intact  
(92-93%), non-toxic, lipopolysaccharide (LPS)-free (less than 0.40 EU/mg  
of protein), low-iron saturated (below 7% saturation), biologically active  
(2.50  $\mu$ M lactoferrin inhibited *V. cholerae* growth in 50%), and  
consistently homogenous preparations. The quality of this  
lactoferrin preparation allows its use in basic studies of the  
mechanisms of microbial virulence, and in the development of new tools for  
the diagnosis of gastrointestinal inflammation which  
are currently being performed by our group.

CC Digestive system - Physiology and biochemistry 14004  
Biochemistry studies - General 10060

IT Major Concepts  
Biochemistry and Molecular Biophysics; Digestive System (Ingestion and  
Assimilation)

IT Chemicals & Biochemicals  
colostral lactoferrin: analysis, characterization, functional  
aspects, structural aspects

IT Methods & Equipment  
high performance liquid chromatography: analytical method, liquid  
chromatography; spectroscopy: analytical method, photometry: CB,  
photometry: CT

IT Miscellaneous Descriptors  
biotechnology; gastrointestinal inflammation:  
diagnosis; infection prevention

ORGN Classifier  
Hominidae 86215  
Super Taxa  
Primates; Mammalia; Vertebrata; Chordata; Animalia  
Organism Name  
human: adult, human

Taxa Notes

Animals, Chordates, Humans, Mammals, Primates, Vertebrates